EXECUTIVE SUMMARY

ALLOCATION OF WATER SUPPLY AND LONG-TERM CONTRACT EXECUTION CENTRAL ARIZONA PROJECT

EXECUTIVE SUMMARY

I. PURPOSE AND NEED FOR THE PROPOSED ACTION

This draft Environmental Impact Statement (EIS) describes the environmental effects of proposed modifications to previous Central Arizona Project (CAP) water allocation decisions and associated long-term contract execution. The draft EIS has been prepared in compliance with the requirements of the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), which require the evaluation of potential environmental impacts resulting from Federal actions.

Reclamation is proposing modifications to previous CAP water allocations. The purpose and need for the Federal action is to allocate remaining available CAP water in a manner that would facilitate the resolution of outstanding Indian water rights claims in the State of Arizona. Authority for this action is pursuant to the Colorado River Basin Project Act of 1968 (Public Law [PL] 90-537).

The proposed allocation is taking place in the context of settlement negotiations concerning operation and repayment of the CAP and Indian water rights. These negotiations are being conducted by the U. S. Departments of the Interior and Justice, with representatives of the Central Arizona Water Conservation District (CAWCD), several Indian Tribes, Arizona Department of Water Resources (ADWR), non-Indian agricultural (NIA) districts, and several municipalities. The proposed action (or Settlement Alternative) identified in the draft EIS is an allocation of CAP water consistent with terms of the negotiated settlements currently under discussion with these entities. The draft EIS also analyzes three alternative allocations of remaining available CAP water. The Secretary of the Interior could implement any one of these four action alternatives to achieve the purpose and need for the proposed action.

A final allocation of remaining available CAP water, and execution of contracts for delivery of that water, would provide a level of certainty to all entities regarding available future water supplies. This, in turn, would enable Arizona water users, Indian and non-Indian alike, to develop and implement the systems and infrastructure necessary to utilize those water supplies to meet future water demands and serve Tribal and community needs.

This EIS, when final, will serve as NEPA compliance to allow the Secretary to make a final overall allocation and enter into water service contracts and subcontracts. It is anticipated that at the conclusion of the NEPA process, the Secretary will prepare a Record of Decision (ROD) and offer and execute contracts pursuant to that ROD.

II. DESCRIPTION OF THE ALTERNATIVES

II.A Alternatives Considered but Eliminated from Detailed Analysis

Three major considerations were taken into account in developing the range of alternatives:

- Restrictions or conditions that apply to any CAP water made available for reallocation as a result of authorizing legislation and/or water settlement agreements;

- Amounts of water believed to be sufficient to facilitate resolution of water rights claims of Tribes being "actively" negotiated; and

- Water needs of the non-Indian sectors served by the CAP.

Several non-settlement alternatives were considered in addition to those included in the draft EIS. Several of these were identified for consideration during the public scoping process. The following were eliminated from further detailed analysis:

- Alternatives that would allocate water, made available for Federal purposes by the Fort McDowell Indian Community Water Settlement Act of 1990 (PL 101-628) to the Tonto Apache and Yavapai Apache Tribes, were eliminated after determining that Act requires this water be used in the final settlement of Indian water rights claims on the Salt and Verde River watershed;

- Alternatives that would allocate remaining available CAP water to Indian Tribes, in addition to those evaluated in the draft EIS, were eliminated because negotiations regarding settlement of water rights claims for those entities are not sufficiently developed at this time (although this does not preclude future CAP allocations being made to these Tribes);

- Alternatives that would allocate remaining available CAP water for environmental purposes, on the Colorado River mainstem or for use in the Colorado River Delta in Mexico, were eliminated as they would not be consistent with the stated purpose and need of this proposed Federal action; and

- Alternatives that would allocate a specific portion of NIA priority water for non-Indian purposes, through a process and at a future time to be determined, were eliminated from further consideration in recognition of the fact that such water would need to first be offered to certain NIA districts pursuant to a 1992 Final Reallocation Decision (57 Federal Register [FR]4470) (see draft EIS, Chapter I.B.2, and Chapter II.C.4).

II.B. Alternatives Evaluated in the Draft EIS

The draft EIS describes in detail four alternative allocations of remaining available CAP water, as well as a No Action Alternative. Implementation of any of the action alternatives would fulfill the purpose and need of the Federal action.

Existing Indian and non-Indian municipal and industrial (M&I) CAP water allocations are expressed as fixed volumes, whereas NIA allocations are expressed as a percentage of the available CAP water supply that remains after the Indian and M&I sectors' allocations have been ordered and delivered each year[1]. Under the Settlement Alternative, all CAP water allocations would be expressed as fixed volume amounts. Solely to provide a consistent basis for describing and comparing the alternatives in the draft EIS, the NIA allocations have been converted from percentages to fixed volumes for all the alternatives. The calculation of fixed volume amounts corresponding to percentages of available CAP water supply may vary depending upon the order in which specific calculations, reductions and conversions are made[2]. Use of specific numbers in the EIS is not meant to imply a degree of precision that does not exist, and it should be noted the various amounts of water attributed to the NIA sector are estimates for purposes of describing alternative allocation scenarios. There is one exception, however. NIA priority water previously allocated and contracted to Harquahala Valley Irrigation District (HVID) pursuant to the Fort McDowell Indian Community (FMIC) Water Rights Settlement Act of 1990 (PL 101-628), has been converted from an NIA percentage allocation to a fixed volume of 33,251 acre-feet per year (afa) and is considered to be Indian priority. Of this amount, 13,933 afa were allocated and contracted to FMIC in December 1993. The remaining "HVID water" (19,318 afa) is being reserved for Federal use in the settlement of Indian water rights claims to the Salt and Verde River watershed.

II.B.1. Settlement Alternative (Proposed Action)

The Settlement Alternative, referred to as the proposed action during the scoping process, would result in the allocation of remaining available CAP water consistent with both the settlement stipulation between the United States and CAWCD[3], and ongoing negotiations among the United States, CAWCD, Gila River Indian Community (GRIC), the State of Arizona, and other affected parties, including other Indian Tribes. In the event a final settlement contains modifications that are different from those analyzed in this process, Reclamation would evaluate them to determine what additional NEPA compliance is required prior to implementation.

Under the Settlement Alternative, remaining available CAP water would be allocated as follows:

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[1] For purposes of this EIS, the total amount of CAP water available in a normal year, for diversion and use after deducting estimated system losses, is 1,415,000 acre-feet annually (afa). This includes some higher priority Colorado River water that has been allocated to Indian Tribes also holding CAP water contracts. The Secretary, in his capacity as Water Master for the Colorado River, makes an annual determination of whether Colorado River water supplies are "normal," "surplus," or "shortage," based upon water storage levels and other factors. See Appendix A for details.

[2] For a detailed explanation of the method by which these conversions were made for the EIS, see Appendices A and B.

[3] On May 9, 2000, the United States and CAWCD reached agreement on a stipulated settlement agreement which would resolve and "stay" or suspend the active litigation of the *CAWCD v. United States* lawsuit (Appendix O).

- A total of 65,647 afa of currently unallocated M&I priority water would be allocated and contracted to M&I entities consistent with State recommendations.

- A total of 17,000 afa of M&I priority water currently contracted to ASARCO would be voluntarily transferred to GRIC pursuant to an agreement between the two parties, and would be put under contract to GRIC.

- A total of 37,918 afa of CAP water currently held by the Secretary, as a result of the Roosevelt Water Conservation District (RWCD) and HVID CAP relinquishments, would be used to facilitate Indian water rights claims (36,400 afa would be allocated and contracted to GRIC; the remaining 1,518 afa would continue to be held for use in settling Indian water rights claims in the Salt and Verde River watershed).

- All allocations of NIA-priority water would be converted to fixed volumes based upon a total CAP water supply of 1,415,000 afa. It is assumed that CAP water allocated to NIA entities would be voluntarily relinquished (estimated to affect a maximum of 295,263 afa). To facilitate this relinquishment, some degree of Federal debt relief and Reclamation Reform Act (RRA) relief would be provided for NIA users. It is further assumed that, consistent with past and current practice, CAWCD would continue to make NIA priority water available during the 2001 to 2030 period. Assuming the maximum amount would be relinquished, the following is envisioned to occur:

  - 102,000 afa would be reallocated to GRIC as part of a water rights settlement agreement; and 28,200 afa would be allocated to the Tohono O'odham Nation (TON) to satisfy Federal obligations under the Southern Arizona Water Rights Settlement Act of 1982 (PL 97-293) (SAWRSA).

  - 69,800 afa[4] would be reserved for Federal use, primarily to facilitate future Indian water rights settlements. Although allocations to Tribes would be made when appropriate, for purposes of identifying environmental consequences in this EIS, it is assumed this block of water would be made available as excess water[5] for the remainder of the 50-year study period, continuing to be used by the NIA sector, and for groundwater recharge or other uses. This assumption is consistent with project operations since 1993 and represents a continuation of the ongoing administration and operation of the project by CAWCD.

  - Up to 95,263 afa would be distributed for use by the M&I or NIA sectors by the State of Arizona, through a process to be established at a future date. For

[4] Current negotiations indicate this amount would be reduced by 2,500 afa; the final EIS will reflect the most current amounts agreed upon, including this change.

[5] Excess water has been made available on an annual basis through two-party contracts with CAWCD. The United States is challenging provisions of these agreements for consistency with Reclamation law in ongoing litigation regarding operation of the CAP. These issues have been addressed in the settlement stipulation. Under the Non-Settlement Alternatives, it is assumed that current CAP operations allowing delivery of these water supplies would continue pending resolution of the ongoing litigation.

the purpose of the draft EIS, this water is treated as excess water during the period of analysis.

- The manner in which shortages are allocated within the CAP would be as follows: when CAP water supply is less than the total Indian water plus the total M&I water, both M&I and Indian CAP water users would begin to take shortages based on the proportions contemplated (approximately 64 percent and 36 percent, respectively) in the 1980 and 1983 FR notice. The agreed-to schedule resolves differing interpretations of the 1980 and 1983 FR notices. NIA priority water would maintain its original priority similar to existing CAP operation schedules. Water that would be voluntarily relinquished and assigned to different user sectors would retain its original NIA priority. It should be noted that higher priority Colorado River water delivered by CAP would continue to retain its priority under the Settlement Alternative.

II.B.2. Non-Settlement Alternative 1

Under Non-Settlement Alternative 1, remaining available CAP water would be allocated as follows:

- A total of 65,647 afa of currently uncontracted M&I priority water would be allocated and contracted to M&I entities consistent with State recommendations referenced above under the Settlement Alternative.

- A total of 17,000 afa of M&I priority water currently contracted to ASARCO would be voluntarily transferred to GRIC pursuant to an agreement between the two parties, and would be put under contract to GRIC.

- A total of 18,600 afa of NIA priority water, relinquished by RWCD for the Secretary to reserve for contracting to GRIC pursuant to the Agreement among the United States, GRIC and RWCD of 1992, would be put under contract to GRIC.

- NIA entity allocations would continue to be expressed as a percentage of the CAP water supply remaining after the M&I and Indian allocations have been ordered and delivered each year.

- There would be no change from current practices regarding the manner in which CAP water is handled during shortage or surplus conditions on the Colorado River.

II.B.3. Non-Settlement Alternative 2

Under Non-Settlement Alternative 2, remaining available CAP water would be allocated as follows:

- A total of 65,647 afa of currently uncontracted M&I priority water would be allocated and contracted to Indian Tribes for use in facilitating settlement of

Indian water rights.

- A total of 17,000 afa of M&I priority water currently contracted to ASARCO would be voluntarily transferred to GRIC pursuant to an agreement between the two parties, and would be put under contract to GRIC.

- A total of 18,600 afa of NIA priority water, relinquished by RWCD for the Secretary to reserve for contracting to GRIC pursuant to the Agreement among the United States, GRIC and RWCD of 1992, would be put under contract to GRIC.

- A total of 38,999 afa of currently relinquished and/or declined NIA priority water would be reallocated to Indian Tribes for use in facilitating settlement of Indian water rights claims.

- NIA entity allocations would continue to be expressed as a percentage of the CAP water supply remaining after the M&I and Indian allocations have been ordered and delivered each year.

- There would be no change from current practices regarding the manner in which CAP water is handled during shortage or surplus conditions on the Colorado River.

II.B.4. Non-Settlement Alternative 3

Under Non-Settlement Alternative 3, remaining available CAP water would be allocated as follows:

- A total of 65,647 afa of currently uncontracted M&I priority water would be reallocated to Indian Tribes for use in facilitating settlement of Indian water rights claims.

- A total of 17,000 afa of M&I priority water currently allocated to ASARCO would be voluntarily transferred to GRIC pursuant to an agreement between the two parties, and would be put under contract to GRIC.

- A total of 18,600 afa of NIA priority water, relinquished by RWCD for the Secretary to reserve for use by GRIC, pursuant to the Agreement among the United States, GRIC and RWCD of 1992, would be put under contract to GRIC.

- A total of 38,999 afa of currently relinquished and/or declined NIA priority water would be reallocated to Indian Tribes for use in facilitating settlement of Indian water rights claims.

- A total of 184,449 afa of NIA priority water which is considered to have reverted to the Secretary would be allocated and contracted to several Indian users, or would be reserved for use in facilitating settlements of Indian water rights claims.

- NIA entities would be offered an estimated 71,815 afa consistent with the 1992 NIA reallocation process. For purposes of evaluating the environmental consequences of this alternative, it is anticipated one of two outcomes would result:

  - Option 3A - Under this option, it is anticipated the six affected districts[6] would satisfy the eligibility requirements for receiving the reallocated 1992 NIA water, and water service subcontracts would be executed for the amounts identified through that process.

  - Option 3B - Under this option, the six affected districts would not be able to meet the eligibility requirements for receiving, or would decline, the reallocated 1992 NIA water. The water would revert to the United States, consistent with the 1992 NIA reallocation process described in 57 FR 4470. The United States would make this estimated 71,815 afa of NIA priority water available for M&I purposes. It is assumed this water would be distributed pro rata among the M&I entities based upon the recommendations received from the State as described earlier. These contracts would be offered and executed.

- NIA entity allocations would continue to be expressed as a percentage of the CAP water supply remaining after the M&I and Indian allocations have been ordered and delivered each year.

- There would be no change from current practices regarding the manner in which CAP water is handled during shortage or surplus conditions on the Colorado River.

II.B.5. No Action Alternative

The No Action Alternative provides a baseline for comparing the impacts of the alternatives discussed in the draft EIS. For purposes of this document, "no action" is defined as no additional Federal action being taken regarding allocation or contracting of CAP water. No blocks of water would move from one sector to another. No CAP water transfers would be approved by Reclamation. Even actions that have already been agreed upon, such as the transfer to GRIC of 17,000 afa of water previously allocated to ASARCO, would not occur, since Secretarial approval or Federal action would be required.

It is assumed under the No Action Alternative that the status quo would continue for the 50-year study period. There would be no additional water allocated or reallocated within the M&I sector[7]. The NIA districts would continue to use CAP water as they do

[6] Maricopa-Stanfield Irrigation & Drainage District (MSIDD), Central Arizona Irrigation and Drainage District (CAIDD), New Magma Irrigation and Drainage (NMIDD), Chandler Heights Citrus Irrigation District (CHCID), San Carlos Irrigation and Drainage District (SCIDD), Roosevelt Irrigation District (RID).

[7] Transfer of M&I allocations and/or amendments to the existing M&I subcontracts, already recommended by ADWR and being processed by Reclamation, would be completed.

currently under two-party excess water agreements, and the status of their CAP water service subcontracts would remain unresolved. No additional water would be provided to facilitate settlement of Indian water rights claims, and the uncertainty of the status of water rights would remain. Current water rights litigation would continue, as well as litigation over repayment of the CAP. No particular outcome of these lawsuits is assumed under the No Action Alternative.

An optional way to define the No Action Alternative would have been to identify reasonably foreseeable actions that might be expected to occur in the absence of the Settlement Alternative. The action alternatives considered in this EIS, however, already comprise various alternative futures that could result in the absence of a settlement. Moreover, in the absence of any reallocation at all, it is difficult to envision reasonably foreseeable actions that would be likely to occur, because so much would depend upon the outcome of litigation between CAWCD and the United States. In light of these considerations, Reclamation determined it was most reasonable, and most consistent with Council on Environmental Quality regulations, to define the No Action Alternative as truly one in which no additional Federal action occurs, without speculating on future possibilities.

II.C. Description of CAP Water Use by Sector

Tables ES-1, ES-2, and ES-3 provide the allocations that would occur under each of the alternatives.

II.C.1. M&I Sector

Under the Settlement Alternative and Non-Settlement Alternatives 1 and 3B, 20 of 21 potential M&I entities would receive an allocation of CAP water. The allocation would be made consistent with the recommendations received from the State (see Appendix N). Water service subcontracts would be executed with those entities. It is anticipated that the M&I entities would use the CAP water to supply existing and future M&I demand and/or to offset current groundwater pumping. Under Non-Settlement Alternative 3B, it is assumed that the M&I entities would directly use 65,647 afa of their allocation of 71,815 afa of NIA priority water and recharge the balance in order to help firm up this water supply. Under the Settlement Alternative, seven Maricopa County municipalities would receive a portion of 41,000 afa leased from GRIC; and the Cities of Chandler and Mesa would also participate in a “reclaimed water for CAP water” exchange with GRIC.

Table ES-1
CAP Allocation Draft EIS
Summary Table of New Allocations – M&I

Entity	Allocation Under Alternative (acre-feet per year)					
	Settlement Alternative	**No Action**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A[d]**	**Non-Settlement Alternative 3B[d]**
Arizona Water Company –Apache Junction[a]	285	0	285	0	0	312[b]
AVRA Water Cooperative	808	0	808	0	0	884[b]
Cave Creek Water Company	806	0	806	0	0	882[b]
City of Chandler	4,986	0	4,986	0	0	5,454[b]
Chaparral City Water Company	1,931	0	1,931	0	0	2,112[b]
Community Water Company of Green Valley	1,521	0	1,521	0	0	1,664[b]
City of El Mirage	508	0	508	0	0	556[b]
City of Glendale	3,053	0	3,053	0	0	3,340[b]
City of Goodyear	7,211	0	7,211	0	0	7,889[b]
H20 Water Company	147	0	147	0	0	161[b]
City of Mesa	7,115	0	7,115	0	0	7,784[b]
Metropolitan Domestic Water Improvement District (MDWID)	4,602	0	4,602	0	0	5,034[b]
Town of Oro Valley	3,557	0	3,557	0	0	3,891[b]
City of Peoria	5,527	0	5,527	0	0	6,046[b]
City of Phoenix	8,206	0	8,206	0	0	8,977[b]
City of Scottsdale	2,981	0	2,981	0	0	3,261[b]
Town of Superior/Arizona Water Company-Superior	285	0	285	0	0	312[b]
City of Surprise	2,876	0	2,876	0	0	3,146[b]
City of Tucson	8,206	0	8,206	0	0	8,977[b]
Vail Water Company	1,071	0	1,071	0	0	1,172[b]
Valley Utilities Water Company	250	0	250	0	0	273[b]
M&I and/or NIA Reserved for Future Use[c]	95,263	0	0	0	0	0
Total	65,647	0	65,647	0	0	71,815

Notes:
(a) If the allocation is not accepted, then the 285 acre-feet from Town of Superior would be recommended for the Arizona Water Company for use in its Superior or Apache Junction system.
(b) NIA-priority water.
(c) In a process to be developed later and not included in total.
(d) Under Non-Settlement Alternative 3, allocations would be offered on a percentage basis and are shown here as fixed volumes for ease in describing and comparing all the alternatives.

Table ES-2
CAP Allocation Draft EIS
Summary Table of New Allocations – NIA

Entity	Allocation Under Alternative (acre-feet per year)					
	Settlement Alternative	**No Action**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A[a]**	**Non-Settlement Alternative 3B[a]**
CAIDD	0	0	0	0	27,342	0
Chandler Heights Citrus ID	0	0	0	0	173	0
Maricopa-Stanfield IDD	0	0	0	0	26,497	0
New Magma IDD	0	0	0	0	3,396	0
Queen Creek ID	0	0	0	0	0	0
Roosevelt ID	0	0	0	0	6,122	0
San Carlos IDD	0	0	0	0	8,284	0
San Tan ID	0	0	0	0	0	0
Tonopah ID	0	0	0	0	0	0
M&I and/or NIA Reserved for Future Use[b]	95,263	0	0	0	0	0
Total	0	0	0	0	71,815	0

Notes:
(a) Under Non-Settlement Alternative 3, allocations would be offered on a percentage basis and are shown here as fixed volumes for ease in describing and comparing all alternatives.
(b) In a process to be developed later and not included in total.

II.C.2. NIA Sector

Although entities in the NIA sector would receive an allocation only under Non-Settlement Alternative 3A, it is assumed that under all alternatives, this sector would continue to have access to affordably-priced CAP Ag Pool water (which consists of lower priority excess water). The annual quantity of the Ag Pool varies substantially by alternative, with the largest total Ag Pool available under the Settlement Alternative. The anticipated distribution of the Ag Pool to the various NIA entities also varies between the Settlement Alternative and all other alternatives (see Appendix A). It is assumed that given access to reasonably priced CAP water, the NIA entities would use it for agricultural irrigation on existing CAP-eligible lands and offset groundwater pumping.

Table ES-3
CAP Allocation Draft EIS
Summary Table of New CAP Allocations – Indian

Entity	Allocation Under Alternative (acre-feet per year)					
	Settlement Alternative	**No Action**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
GILA RIVER INDIAN COMMUNITY						
Allocated	155,400	0	35,600	75,099	170,200	170,200
Designated	0	0	17,800	17,800	17,800	17,800
GRIC Total	155,400	0	53,400	92,899	188,000	188,000
Tohono O'odham Nation						
San Xavier District	23,000	0	0	23,000	23,000	23,000
Schuk Toak District	5,200	0	0	5,200	5,200	5,200
TON Total	28,200[(a)]	0	0	28,200[(a)]	28,200[(a)]	28,200[(a)]
SCAT	0	0	0	23,447	40,000	40,000
Navajo/Hopi	0	0	0	13,500	13,500	13,500
Reserved for Future Settlements	33,400[(b)]	0	0	0	34,877[(b)]	34,877[(b)]
Totals	217,000	0	53,400	158,046	304,577	304,577

Notes:
(a) Under the Settlement Alternative and Non-Settlement Alternatives 2 and 3, the 28,200 AF annually of additional water to the TON per SAWRSA are identified as a CAP allocation.
(b) Reserved for Federal use, primarily to facilitate future Indian water rights settlements. Water for environmental purposes within the State of Arizona could be available on an annual basis.

II.C.3. Indian Sector

Hypothetical, non-binding plans for the Tribes' uses of CAP allocations are briefly described below. These plans have been developed solely for purposes of preparing this document, and are intended only to provide examples of the types of uses for which these Tribes could use the allocated water. The Tribes themselves will determine the actual uses of water; accordingly, these examples should not be considered binding on the part of any user with regard to developing plans, once water is allocated and contracted. More comprehensive descriptions are included in Appendix L.

II.C.3.a Gila River Indian Community

Under the Settlement Alternative, GRIC would receive an additional 155,400 afa of CAP water, which would contribute to satisfying GRIC's total water budget of 653,500 afa[8]. GRIC's Gila River water rights claims would be settled.

[8] GRIC's total water budget for its water rights settlement includes the following sources: CAP water, obtained as an allocation as well as from other entities through water rights settlements; Globe Equity 59 Decree water from the Gila River; groundwater; Salt River Project (SRP) water and reclaimed water.

Based upon current water rights settlement negotiations, it is anticipated that 41,000 afa of Indian priority water to be received as part of the Settlement Alternative would be leased by GRIC to seven municipalities within Maricopa County for a 100-year period. It is also anticipated GRIC would exchange 32,500 afa of CAP water with the Cities of Mesa and Chandler for 40,600 afa of reclaimed water, resulting in a net addition of 8,100 afa of water to GRIC's total water budget. The specific plans for transporting and using this reclaimed water are unknown at this time.

Based upon previous agreements, it is anticipated that 17,000 afa of the 155,400 af of CAP water would be available to be leased to ASARCO; 12,000 afa could also be leased to Phelps Dodge Corporation. The details of the lease arrangements and specific uses of the leased water are not known at this time.

For purposes of evaluating the environmental consequences in the draft EIS, it is anticipated that all CAP water not leased or exchanged would be used for agricultural purposes. GRIC has developed a master agricultural development plan, called the Pima-Maricopa Irrigation Project (PMIP), which consists of rehabilitating existing agricultural lands and developing new lands for agriculture within the Reservation, up to a maximum of 146,330 acres. This additional net 93,500 afa of CAP water would support continued agricultural use/development of about 20,800 acres, consistent with the PMIP, for which a programmatic EIS was prepared (Reclamation 1997) and a ROD issued (Reclamation 1998).

Under the non-settlement alternatives, it is assumed that GRIC would develop varying amounts of land for agricultural purposes based on the volume of additional CAP water received.

II.C.3.d. Tohono O'odham Nation

Among its other provisions, the SAWRSA directed the Secretary to secure and deliver 28,200 afa of water to TON as a component of settlement of water rights claims of the TON. This water was identified to be of a quality suitable for agricultural use; however, the source of this water was not identified. Under the Settlement Alternative and Non-Settlement Alternatives 2 and 3, the source of this water would be CAP water. Of this total amount, San Xavier District would receive 23,000 afa and Schuk Toak District would receive 5,200 afa. These are specific amounts established by the SAWRSA.

For purposes of evaluating the environmental consequences in the draft EIS, it is envisioned that water received as a result of this allocation would be used by each district primarily for agriculture and/or recharge. For the San Xavier District, it is anticipated approximately 15,000 afa would be used for agricultural purposes. An estimated 3,000 acres could be farmed with that amount of water. It is anticipated the remaining 8,000 afa would be recharged (directly and/or indirectly) within the district. It is anticipated the Schuk Toak District would use its 5,200 afa for agriculture, which could serve an estimated 1,000 acres.

II.C.3.c. San Carlos Apache Tribe

Under Non-Settlement Alternative 2, the SC Apache Tribe would receive a total of 23,447 afa (3,947 afa of M&I priority, and 19,500 afa of NIA priority water); and under Non-Settlement Alternative 3, the Tribe would receive a total of 40,000 afa (3,947 afa of M&I priority water, and 36,053 afa of NIA priority water). It is anticipated that in order to use the CAP water, the SC Apache Tribe would need to enter into an exchange agreement with a downstream party that has both rights to use Gila River water and access to CAP water. Water would most likely be used for agriculture (up to 8,000 acres could be farmed), although the Tribe could decide to leave some water in San Carlos Reservoir to maintain a minimum pool in the reservoir.

II.C.3.b. Navajo Nation and Hopi Tribe

Under Non-Settlement Alternatives 2 and 3, the Navajo Nation and Hopi Tribe would together receive a total of 13,500 afa of M&I priority water. For purposes of evaluating the environmental impacts in this draft EIS, it is anticipated the Navajo Nation and Hopi Tribe would both utilize this water for M&I purposes. The water would likely be diverted out of Lake Powell and delivered via pipeline for use in the lower Colorado River basin[9].

II.C.3.e. Other Tribes

Under the Settlement Alternative and Non-Settlement Alternative 3, 69,800 afa[10] and 72,795 afa of NIA priority water, respectively, would be reserved for Federal purposes. Unless and until specific amounts are allocated and contracted[11] to facilitate the settlement of future water rights claims, this water would be made available as excess water, available on an annual basis through two-party contracts with CAWCD. For purposes of this EIS, it is assumed this water would remain in the excess water pool for the remainder of the 50-year study period, continuing to be used primarily by the NIA sector and for groundwater recharge.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

III.A. Introduction

The technical studies, which are included as appendices to this draft EIS, became the basis for predicting the potential environmental impacts associated with each alternative described and addressed in this document. To establish inputs for the technical studies, it was necessary to develop a wide array of assumptions. Development of the background assumptions common to all analyses is described in detail in Appendix A.

[9] It is anticipated that issues related to this diversion and the associated delivery system would be addressed as part of water rights settlement.

[10] Current negotiations indicate this amount would be reduced by 2,500 afa. The final EIS will reflect the most current amounts agreed upon, including this change.

[11] When allocated and contracted, this water could be delivered via the CAP system, diverted from the Colorado River mainstem (as proposed for the Navajo / Hopi allocation under Non-Settlement Alternatives 2 and 3), or exchanged with a CAP partner (as proposed for the SC Apache Tribe under Non-Settlement Alternatives 2 and 3).

Development of assumptions utilized for a specific resource area can be found in its respective technical appendix.

The majority of these assumptions had to do with water availability, water demand and cost of available water. The background assumptions developed for this draft EIS that are common to all analyses are grouped into the following major categories: water availability and pricing; population projections; and land uses. Evaluation of the background assumptions resulted in quantification of water demands of, and water supplies available to, each individual entity for the 50-year study period used for this analysis (2001-2051).

The water availability and pricing assumptions were developed to assess not only the volume of CAP water available by priority class[12], but also the possible price of CAP water. The water availability assumptions included: capacity of the CAP system as a whole; capacity within the CAP system; possible shortages in the Colorado River system; possible surplus Colorado River water available to CAP; and water demands by users of excess CAP water, including the Arizona Water Bank Authority, Central Arizona Groundwater Recharge District, and NIA districts.

Projected water uses by the individual entities within each use sector (M&I, NIA, and Indian) were developed. NIA projected water uses were also based upon an economic analysis conducted by Reclamation (included as Appendix D), cropping patterns, entity interviews, and water supply analyses. As mentioned above, Indian users' potential water uses were developed solely for purposes of this document, and are intended only to provide examples of the types of uses for which these Tribes could use the allocated water. Each of the potentially affected 35 entities' projected water use is included in Appendix L.

Because specific/definitive details are not known regarding entities' plans for taking and using CAP water allocation as a result of this proposed allocation, direct impacts were identified and summarized on a programmatic level. The vast majority of environmental impacts that are described in the draft EIS are considered to be indirect impacts that would occur as a result of choices made by water users due to the availability or unavailability of CAP and other sources of water.

Table ES-4 displays a summary of the impacts of the alternatives on the various resources discussed in the draft EIS. Impacts from the proposed allocation are briefly described below. The No Action Alternative provides a baseline against which the impacts of the action alternatives are compared. Due to the nature and extent of the assumptions made to conduct the technical studies, the analyses provide more value as a comparison of each action alternative to the others and to the No Action Alternative's baseline, rather than as a prediction of actual changes that would occur within a particular resource area.

[12] It is assumed that CAP water would be delivered by priority class. These priority classes are defined in Appendix A.

III.B. Water Resources

Groundwater level changes that would occur under the No Action Alternative were first modeled. Groundwater level changes that would occur under each of the action alternatives were then modeled and compared to those anticipated to occur under no action. Under all the action alternatives, the magnitude of groundwater level declines over the 50-year study period would not be large enough to substantially limit the physical or legal ability of any entity to recover groundwater. In general, the increased costs associated with pumping at greater depths would be small in relation to the costs of developing alternative water supplies for M&I use.

A significant factor in the relatively small groundwater level impacts experienced under all alternatives is the availability of substantial amounts of excess water during the early years of the analysis. This excess water availability means that many entities which do not get CAP allocations would have continued access to CAP water through excess water agreements with CAWCD. Larger groundwater level impacts would be anticipated if either the contracted CAP water supply was fully used (thus reducing the amount of excess water available), or if different assumptions were made as to the distribution of the excess water.

The amount of water that could be recharged at direct recharge facilities would be affected by the different alternatives. This is because the allocations under each of the action alternatives would affect the size of the Recharge Pool (which consists of lower priority excess water).

Unlike most of the areas evaluated in this analysis, the water demands on GRIC vary among the alternatives, as does the portfolio of water supplies used to meet those demands. This can result in groundwater level impacts that are at first glance counter-intuitive. For example, while surface water supplies available to GRIC are greatest under the Settlement Alternative, groundwater levels on GRIC generally drop and the lowest groundwater levels for most locations generally occur, under this alternative. The lower groundwater levels primarily reflect that the Settlement Alternative has the greatest cropped acreage (and so the greatest irrigation demand), and the greatest groundwater pumping of any alternative. Groundwater levels on GRIC for all alternatives also reflect that: (1) there is a net groundwater outflow under all alternatives; and (2) improvements in the distribution facilities tend to reduce the incidental recharge under all alternatives.

III.B.2. Effluent

The level of effluent discharge from existing wastewater treatment plants is projected to continue at current or increased levels under the No Action and all action alternatives. As population increases, it is anticipated that effluent would not be sent to the regional wastewater treatment plants, such as Phoenix's 91st Avenue Wastewater Treatment Plant, but rather would be treated locally in smaller wastewater treatment plants, such as the one at the Anthem development north of Phoenix. These local wastewater treatment plants may use the reclaimed water for turf facilities, groundwater recharge, or discharge to streams. Under Non-Settlement Alternatives 2 and 3A, and the No

Action Alternative, in which the M&I entities would not receive an additional CAP allocation, it is estimated that more reclaimed water would be used for turf facilities than for the other alternatives (see tables of Summary of Projected Water Uses for Each Entity in Appendix C for estimated differences in effluent reuse by alternative).

III.B.3. Colorado River Mainstem

Under the No Action and Settlement Alternatives, and Non-Settlement Alternative 1, no change in the diversion pattern off the Colorado River would occur from the current practice of full CAP diversion at Parker Dam; there would be no impacts to the Colorado River mainstem.

Under Non-Settlement Alternatives 2 and 3, 13,500 afa for the Navajo Nation and Hopi Tribe would likely be diverted from Lake Powell. This diversion is estimated to lower the Colorado River water surface between Lake Powell and Lake Mead less than 0.02 inch; these impacts are considered *de minimis.*

III.C. Socioeconomic

III.C.1. M&I Sector

Analysis of current and potential future water resources compared to project future water demands concluded all M&I entities potentially receiving a CAP allocation could meet their projected demands without receiving additional CAP water through this proposed allocation (see Appendix C). The cost of water would be impacted, however. The cost of delivering and treating CAP water would be about $154 per af. Alternative sources of water (such as CAGRD or reclaimed water) would cost about $214 to $301 per af. Therefore, those entities having a larger proportion of their water supplies consisting of CAP water would have reduced water costs. Under the Settlement Alternative, and Non-Settlement Alternatives 1 and 3B, CAP water is allocated to M&I entities pursuant to State recommendations. No additional CAP water allocations are made to M&I entities under Non-Settlement Alternatives 2 and 3A. Water supplies that could be used under each of the alternatives are identified for each M&I entity in Appendix C.

Within reason, M&I water demand is relatively insensitive to water rates and it is recognized that increased water costs would likely be passed on to consumers via rates, resulting in potentially decreased spending on household discretionary items such as recreation. These secondary impacts were not quantified, because the increased cost for water under the different alternatives is so small, and would be spread over a large number of users

III.C.2. NIA Sector

Forecasts were made of NIA acreage changes over the 50-year study period, and the corresponding groundwater and CAP water usage for all of the alternatives, including the No Action Alternative (see Appendix D).

For the combined nine NIA districts that could be affected by any of the alternatives, the amount of farmed acreage and water use patterns would be similar under all alternatives. The underlying reason is the similarity in water availability under each action alternative. In every study year, the difference in the amount of CAP water available to NIA users (including Ag Pool and in-lieu water[13]) across all alternatives is less than 80,000 af. The change in agricultural output projected to occur under the No Action Alternative is estimated to be a reduction of $23.6 million from 2001 to 2051. Under the Settlement Alternative, this would be expected to be reduced an additional $5.1 million, or $28.7 million. Under Non-Settlement Alternative 1, the change in agricultural output is expected to be $22 million, a net change of +$1.6 million over the No Action Alternative. The agricultural outputs resulting from Non-Settlement Alternatives 2 and 3 are expected to be the same as under the No Action Alternative.

III.C.3. Indian Sector

Estimates were made of schedules when agricultural infrastructure would be completed and lands would be put into full agricultural production. Socioeconomic impacts within this sector were based principally upon the incremental increase in acreage farmed under each action alternative over acreage farmed under the No Action Alternative, and the associated economic outputs. Detailed forecasts are provided in Appendix D.

As Indian lands are converted to agricultural use, water distribution systems would need to be constructed. This is expected to provide employment and income during the years in which construction is expected to occur. Even under the No Action Alternative, it is expected that water delivery facilities would be constructed for Tribes with existing CAP water allocations, whose systems have not yet been completed. Socioeconomic impacts evaluated for the Navajo Nation and Hopi Tribe, resulting from an allocation of M&I priority CAP water under Non-Settlement Alternatives 2 and 3, were limited to direct impacts associated with construction of delivery facilities. Regional economic impacts associated with Indian water delivery construction projects would be positive under all alternatives. The greatest impact would occur under Alternative 3.

In comparing the negative economic impacts on the NIA sector and the positive economic impacts on the Indian sector, it is important to keep in mind that these impacts would fall on different communities. Impacts of abandoning NIA lands and developing Indian lands for agriculture would affect different sectors of the population, but subsequent secondary regional impacts would affect the same sector primarily. Thus, even though the positive impacts would offset the negative impacts from an economic perspective, non-Indian farmers would bear the costs of declining agriculture under all alternatives.

The total economic impact on the three-County area caused by declines in NIA and increases in Indian agriculture is smallest in the early years under all the alternatives. The largest impacts would occur in the later years.

[13] Under Arizona State law, in-lieu water consists of surface water delivered to farmers, who use it in lieu of groundwater, which would otherwise be pumped. Groundwater credits are accrued which may be used at a later point in time.

III.C.4. Power Generation Sector

No water would be diverted from Lake Powell under the No Action Alternative, Settlement Alternative, and Non-Settlement Alternative 1; therefore, no changes in power generation at the Glen Canyon Dam would occur.

Under Non-Settlement Alternatives 2 and 3, there would be a withdrawal of 13,500 afa of water from Lake Powell for M&I use by the Navajo Nation and Hopi Tribe. This withdrawal would reduce energy production at Glen Canyon Dam. Replacing this foregone energy production with spot market purchases and associated transmission services would cost about $226,000 per year. Over the 50-year study period, assuming the water diversions start in 2001, the present value of foregone energy production would be about $7.8 million. Details on the analysis are presented in Appendix J.

III.C.5. CAP Repayment

CAP construction costs are costs allocated to non-Indian and Indian irrigation, commercial power, M&I water, fish and wildlife, recreation, and flood control. Changes in CAP water allocation do not significantly affect the allocation of costs to commercial power, fish and wildlife, recreation, and flood control. Changes in CAP water allocation do, however, impact the costs assigned to non-Indian and Indian irrigation and M&I water supply. The total project construction cost is just under $5 billion and includes all expenditures by the United States in constructing the CAP plus interest during construction.

The CAWCD is the primary repayment entity for the CAP. Under the Settlement Alternative, CAWCD's repayment obligation is $1.650 billion, a fixed, negotiated number. Under the No Action Alternative, CAWCD's repayment obligation is calculated to be $2.183 billion[14], based on Reclamation's revised cost allocation study (CASII). The difference between total project costs and the portion which is to be repaid by local beneficiaries becomes construction costs that are not recovered by the United States through repayment. The difference in cost to the United States between the Settlement Alternative and the No Action Alternative, in terms of a reduction in the repayment amount, is about $500 million. CAWCD would also experience an estimated reduction of $450 million in interest payments to the United States over the repayment period.

III.C.6. RRA

Under the No Action Alternative, it is assumed that all provisions of the RRA would remain in effect. Affected irrigation district landowners would continue to file certification forms and be subject to the excess acreage and full cost pricing provisions of the RRA. Certain lands would continue to be ineligible for project water delivery and commingling fees would continue. Reclamation and the irrigation districts would still need to maintain staff and would incur costs carrying out the RRA program.

[14] It is noted that in *CAWCD vs. United States*, the Court ruled in its Phase One decision that the repayment ceiling is $1.781 billion. In order to provide a basis of comparison, the repayment obligation shown for all Non-Settlement Alternatives is based solely on costs resulting from changes in water allocation.

Under the Settlement Alternative, it is expected that CAP irrigation districts would be provided some degree of relief from the acreage limitation and full cost pricing provisions of RRA. If full relief was provided by Congress, Reclamation irrigation water could be delivered to all CAP irrigation district lands without the ownership and leasing limitations and full cost charges. Commingling fees for delivering non-project groundwater would be eliminated. All of these changes together could make farming more profitable, and potentially increase the use of CAP water and reduce groundwater pumping. Costs to oversee and implement the RRA program would not be incurred on the part of both the irrigation districts and the United States.

III.C.7. Indian Water Rights Settlement Litigation Costs

Under the No Action Alternative and all non-settlement alternatives, it is assumed ongoing litigation would continue among numerous Indian Tribes, the United States on behalf of the Tribes, the State of Arizona, and municipalities, along with the attendant litigation costs. The Settlement Alternative would avoid millions of dollars in future litigation expenditures. The potential savings, relative to the other alternatives, is millions of dollars but the precise amount cannot be determined.

III.D. Land Use

The analysis regarding land use changes within the M&I sector focused primarily on projecting future population growth during the 50-year study period (2001 through 2051) and on identifying the likely areas within each M&I entity's municipal planning area (MPA) and/or service area that would likely be developed to accommodate this growth. The development would occur through the conversion of acres from agriculture and desert to urban use.

In the NIA sector, the abandonment of farming would be the primary land use change associated with the proposed allocations. This land use change is anticipated to occur over time due to increasing unavailability of CAP water, and the increased cost of groundwater supplies.

In the Indian sector, major land use changes associated with the proposed allocations would be the result of rehabilitation of existing, retired or fallowed farm lands, the development of new agricultural lands, and construction of distribution systems. An estimated 101,280 acres would be put under agricultural production under the No Action Alternative. For purposes of this draft EIS, it was assumed that funds would be available to develop the infrastructure that is necessary to take and use CAP water for agriculture. As shown in Appendix A, it was also assumed that the delivery systems would be completed and functioning by the year 2040. This assumption was made based upon expected build-out schedules for Tribal systems and also ensures that allocated water is taken into account in the analysis. To provide a "worst" case analysis, the draft EIS assumes all agricultural development resulting from receipt of CAP water through any of the proposed allocation alternatives would be new development occurring on desert land.

Under the No Action Alternative, it was estimated approximately 46,900 acres of agricultural land would become urbanized and 40,926 acres of agricultural land would be abandoned as a result of economic conditions. The total amount of acres that would be urbanized would be the same for all action alternatives, since it was determined that M&I entities would meet their population projections under all alternatives (see Appendix C). The total number of agricultural acres abandoned within the NIA sector was found to be the same for all the alternatives, including the No Action Alternative; however, the timing of when those acres are taken out of production varies somewhat by alternative. Appendix D provides detail on acres abandoned by year, by alternative.

III.E. Biological Resources

Urban growth is expected to continue under all alternatives, including the No Action Alternative, affecting an estimated 240,000 acres of native desert land. In addition, impacts to habitat would occur from new agricultural development on Indian lands. Assuming all new agricultural development on Indian lands would occur in native desert areas (representing a "worst case"), between 8,000 and 50,000 acres of desert land would be lost, depending upon the alternative. The Settlement Alternative would affect 24,800 acres.

Twenty-four federally threatened and endangered (T&E) species have been recognized as potentially occurring within the general project area, of which 10 were determined to potentially be affected by Tribal agricultural development or urban growth. Reclamation determined that the allocation alternatives considered in the EIS would have no effect on T&E species; however, further Endangered Species Act Section 7 evaluation would take place once the affected Tribes' plans for taking and using the reallocated water are known.

III.F. Cultural Resources

Impacts to cultural resources within the areas of individual entities are expected to be similar under all proposed alternatives, although the acreage of new agricultural development on Indian lands varies among the alternatives. Any ground-disturbing activity has the potential to impact known and/or as yet undiscovered cultural resources. Cultural impacts can be anticipated in any undertaking involving: 1) subjugation of natural desert for agriculture, an action which has the potential to adversely impact intact cultural deposits presently on the surface and within the plowzone; 2) urbanization of farmland, actions which have the potential to adversely impact intact cultural deposits that might still exist below the plowzone; or 3) any related ground-disturbing activity that might result from implementation of the proposed allocation.

The alternative water allocations could result in additional agricultural development of 8,000 to 50,000 acres on Indian lands. These developments are expected to occur in areas that may contain significant cultural resources. Specific locations of the agricultural developments have not yet been determined. Reclamation would consult with the State Historic Preservation Officer and the Tribes under Section 106 of the National Historic

Preservation Act, once project planning and cultural resources surveys have been completed. Based upon these consultations, appropriate mitigation for any identified impacts would be implemented

Under all alternatives, including that of no action, urban growth is expected to continue. An estimated 240,000 acres of desert land and 68,150 acres of farm land would be urbanized within the planning areas of the 21 potentially affected M&I entities. An additional 46,900 acres are estimated to become urbanized within the NIA irrigation districts. Impacts to cultural resources from urban growth are not a consequence of the proposed allocations, since they would occur regardless of the allocation decision. Avoidance or mitigation of cultural resource impacts would be the responsibility of the local jurisdictions.

Under all alternatives, an estimated 40,926 acres of irrigation agricultural lands would be permanently taken out of production due to economic reasons. No impacts to cultural resources are expected from this abandonment of agricultural lands.

III.G. Air Quality

The proposed allocation would result in minor short-term increases in air emissions associated with construction of water conveyance and associated support facilities. Those short-term air emissions are addressed qualitatively because specific information regarding the type, number, and location of additional water transfer conveyance facilities is currently unknown. The long-term direct effects of water transfer are expected to be negligible. The long-term indirect air quality effects associated with water-reallocation-induced economic activity could be substantial; however, due to the timeframe in which they would occur (year 2043 and beyond) and the uncertainty of conditions and standards that may apply at that time, these impacts can only be discussed at a programmatic level.

Agricultural production has the highest potential for generating significant emissions of air pollutants. Changes in water allocations to NIA and Indian sectors would, to varying degrees under each alternative, generate changes in the quantity of agricultural lands put into production in central and southern Arizona. This impact would be greatest in Pinal County during the latter portion of the study period. The analysis indicates current threshold limits would be exceeded by year 2043 and beyond.

III.H. Summary of Environmental Consequences

Table ES-4 summarizes the environmental consequences associated with all alternatives.

Table ES-4
CAP Allocation Draft EIS
Effects of Alternatives on Selected Resources

Resource	Change in Conditions from 2001 to 2051	Impacts (Impacts are Changes in the Action Alternatives Relative to the No Action Alternative)				
	No Action Alternative	**Settlement Alternative**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
Water Resources						
Water Resources M&I Sector	Groundwater levels generally continue to decline, except in areas where CAP water is used for groundwater recharge or is used to offset substantial amounts of existing groundwater pumping	Groundwater levels reflect that additional CAP water is available for direct use, and less CAP water is available for recharge	Groundwater levels reflect that additional CAP water is available for direct use, and less CAP water is available for recharge	Groundwater levels reflect that less CAP water is available for direct use and groundwater recharge	Groundwater levels reflect that less CAP water is available for direct use and groundwater recharge	Groundwater levels reflect that additional CAP water is available for direct use, and less CAP water is available for recharge
	Declines in groundwater levels indicate safe yield would not be achieved by year 2025	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Physical and legal ability to recover groundwater not substantially limited	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Potential for subsidence in most areas with substantial groundwater level declines	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Potential for worsening of water quality as water levels drop in areas with poorer quality groundwater at depth	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
Water Resources NIA Sector	Higher groundwater levels in QCID, STID, CHCID, RID. No appreciable impacts to groundwater levels in NMIDD and TID. Lower groundwater levels in MSIDD, CAIDD, and SCIDD.	No appreciable impacts to groundwater levels in MSIDD, CAIDD, and RID. Higher groundwater levels in SCIDD. Lower groundwater levels in QCID, NMIDD, STID, CHCID, and TID.	No appreciable impacts to groundwater levels in TID, MSIDD, CAIDD, SCIDD, QCID, STID, CHCID, and RID. Lower groundwater levels in NMIDD.	No appreciable impacts to groundwater levels in TID, MSIDD, CAIDD, SCIDD, and RID. Lower groundwater levels in QCID, NMIDD, STID, and CHCID.	No appreciable impacts to groundwater levels in MSIDD, CAIDD, SCIDD, and RID. Lower groundwater levels in QCID, NMIDD, STID, CHCID, and TID.	No appreciable impacts to groundwater levels in MSIDD, CAIDD, SCIDD, and RID. Lower groundwater levels in QCID, NMIDD, STID, CHCID, and TID.
	Declines in groundwater levels indicate safe yield would not be achieved by year 2025	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative

Table ES-4
CAP Allocation Draft EIS
Effects of Alternatives on Selected Resources

Resource	Change in Conditions from 2001 to 2051	Impacts (Impacts are Changes in the Action Alternatives Relative to the No Action Alternative)				
	No Action Alternative	**Settlement Alternative**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
	Physical and legal ability to recover groundwater not substantially limited	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Potential for subsidence in most areas with substantial groundwater level declines	Increased subsidence potential in QCID, STID, CHCID, NMIDD, and TID. Reduced subsidence potential in SCIDD.	Increased subsidence potential in NMIDD.	Increased subsidence potential in QCIDD, NMIDD, STID, and CHCID.	Increased subsidence potential in QCID, NMIDD, STID, CHCID, and TID.	Increased subsidence potential in QCID, NMIDD, STID, CHCID, and TID.
	Potential for worsening of water quality as water levels drop in areas with poorer quality groundwater at depth	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
Water Resources Indian Sector	Groundwater levels on GRIC would generally decline	Additional decline would occur	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	Additional decline would occur	Additional decline would occur
	Groundwater levels on SC Apache Tribe lands would remain stable	Same as No Action Alternative	Same as No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Groundwater levels on TON, San Xavier District would rise	Additional groundwater level rise would occur	No appreciable difference from No Action Alternative	Additional groundwater level rise would occur	Additional groundwater level rise would occur	Additional groundwater level rise would occur
	Groundwater levels on TON, Schuck Toak District would decline	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Decline in groundwater levels for most areas indicate safe yield would not be achieved by year 2025. Safe yield would be achieved by SC Apache Tribe.	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative
	Physical and legal ability to recover groundwater not substantially limited	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative	No appreciable difference from No Action Alternative

Table ES-4 CAP Allocation Draft EIS Effects of Alternatives on Selected Resources						
Resource	**Change in Conditions from 2001 to 2051**	**Impacts (Impacts are Changes in the Action Alternatives Relative to the No Action Alternative)**				
	No Action Alternative	**Settlement Alternative**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
	Potential for subsidence in most areas with substantial groundwater level declines	Increased subsidence potential in GRIC and reduced potential in TON San Xavier	No appreciable difference from No Action Alternative	Reduced potential for subsidence in TON, San Xavier District	Reduced potential for subsidence in TON, San Xavier District	Reduced potential for subsidence in TON, San Xavier District
	Potential for substantial changes in groundwater quality not identified	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts	No appreciable impacts
Socioeconomic						
Socioeconomic M&I Sector – Cost to deliver potable water	Costs of alternative water supplies (CAGRD and reclaimed water) range from $214 to $301 per af. M&I entities would require approximately 95,000 afa, absent additional CAP water. All entities able to meet projected water demands.	Cost to deliver CAP water is $154 per af	Costs of alternative water supplies (CAGRD and reclaimed water) range from $214 to $301 per af. M&I entities would require approximately 30,000 afa, absent additional CAP water.	Costs of alternative water supplies (CAGRD and reclaimed water) range from $214 to $301 per af	Costs of alternative water supplies (CAGRD and reclaimed water) range from $214 to $301 per af	Costs of alternative water supplies (CAGRD and reclaimed water) range from $214 to $301 per af. M&I entities would require approximately 30,000 afa, absent additional CAP water. Additional cost to recharge 6,168 afa of NIA-priority water.

Table ES-4
CAP Allocation Draft EIS
Effects of Alternatives on Selected Resources

Resource	Change in Conditions from 2001 to 2051	Impacts (Impacts are Changes in the Action Alternatives Relative to the No Action Alternative)				
	No Action Alternative	**Settlement Alternative**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
Socioeconomic NIA Sector – Changes in agricultural output in year 2051 as compared to year 2001	-$23.6 M Potential loss of land and/or agricultural lifestyle for those farmers no longer able to maintain their family farms.	-$5.1 M (relative to No Action Alternative) Potential loss of land and/or agricultural lifestyle for those farmers no longer able to maintain their family farms.	+$1.6 M (relative to No Action Alternative) Potential loss of land and/or agricultural lifestyle for those farmers no longer able to maintain their family farms.	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Socioeconomic Indian Sector – Changes in agricultural output in year 2051 as compared to year 2001	$85.5 M Improved Tribal economy from revenue generated from agriculture.	+$32.4 M (relative to No Action Alternative) Improved Tribal economy from revenue generated from agriculture and water leases.	+$7.6 M (relative to No Action Alternative) Improved Tribal economy from revenue generated from agriculture.	+$18.3 M (relative to No Action Alternative) Improved Tribal economy from revenue generated from agriculture.	+$50.1 M (relative to No Action Alternative) Improved Tribal economy from revenue generated from agriculture.	+$50.1 M (relative to No Action Alternative) Improved Tribal economy from revenue generated from agriculture.
Land Use						
Land Use M&I Sector	240,000 acres of desert urbanized	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
	68,150 acres of farmland urbanized	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Land Use NIA Sector	40,926 acres fallowed due to economic reasons	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
	46,900 acres urbanized	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Land Use Indian Sector	101,280 acres developed for agriculture	24,800 additional acres developed for agriculture	8,000 additional acres developed for agriculture	25,400 additional acres developed for agriculture	50,000 additional acres developed for agriculture	50,000 additional acres developed for agriculture
Biological Resources						
Biological M&I Sector	Loss of 240,000 acres of desert and wildlife habitat	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
	Potential loss of suitable habitat for Cactus Ferruginous Pygmy Owl, Pima Pineapple Cactus, Nichol's Turk's Head Cactus, Arizona Agave, and Arizona Cliffrose	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative

Table ES-4
CAP Allocation Draft EIS
Effects of Alternatives on Selected Resources

Resource	Change in Conditions from 2001 to 2051	Impacts (Impacts are Changes in the Action Alternatives Relative to the No Action Alternative)				
	No Action Alternative	**Settlement Alternative**	**Non-Settlement Alternative 1**	**Non-Settlement Alternative 2**	**Non-Settlement Alternative 3A**	**Non-Settlement Alternative 3B**
Biological NIA Sector	Fallowed acres may provide suitable habitat for burrowing owls and other wildlife	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Biological Indian Sector	Loss of up to 101,280 acres of wildlife habitat	Loss of 24,800 additional acres of wildlife habitat	Loss of 8,000 additional acres of wildlife habitat	Loss of 25,400 additional acres of wildlife habitat	Loss of 50,000 additional acres of wildlife habitat	Loss of 50,000 additional acres of wildlife habitat
Cultural Resources						
Cultural M&I Sector	Loss of cultural resources resulting from urbanization of 240,000 acres of desert and 68,150 acres of farmland	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Cultural NIA Sector	Loss of cultural resources resulting from urbanization of 46,900 acres of farmland	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative	Same as No Action Alternative
Cultural Indian Sector	Loss of cultural resources resulting from agricultural development of 101,280 acres	Loss of cultural resources due to development of 24,800 additional acres	Loss of cultural resources due to development of 8,000 additional acres	Loss of cultural resources due to development of 25,400 additional acres	Loss of cultural resources due to development of 50,000 additional acres	Loss of cultural resources due to development of 50,000 additional acres
Air Quality						
Air Quality Maricopa County	State Implementation Plan (SIP) would control future increases of PM_{10}, CO, and ozone precursor emissions	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions
Air Quality Pinal County	ROG, NOx, CO, and PM_{10} will steadily increase by 1.5 percent per year through 2020	By 2043, PM_{10} emissions could substantially exceed current thresholds	Same as No Action Alternative	By 2034, PM_{10} emissions could exceed current thresholds	By 2043, PM_{10} emissions could substantially exceed current thresholds	By 2043, PM_{10} emissions could substantially exceed current thresholds
Air Quality Pima County	ROG, NOx, and PM_{10} will increase by 1.5 percent per year through 2020. CO emissions will level off after 2010 per SIP.	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions.	Same as No Action Alternative	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions.	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions.	Same as No Action Alternative for M&I emissions. Similar to No Action Alternative for agricultural emissions.